

### Confirmation of cases

- Contact your local poison control center
- Contact your local industrial hygienist or safety officer
- Review US Army Chemical Casualty Care handbook (<http://ccc.apgea.army.mil>)

### Decontamination considerations

- Chemical warfare agents usually require removal of clothing and decontamination of the patient with water
- Treating contaminated patients in the emergency department before decontamination may contaminate the facility

### Institutional reporting

- If reasonable suspicion of chemical attack, contact your hospital leadership (Chief of Staff, Hospital Director, etc)
- Immediately discuss hospital emergency planning implications

### Public Health Reporting

- Contact your local public health office (city, county, or State)
- If needed, contact information for local FBI office (for location of the nearest office, see <http://www.fbi.gov/contact/fo/info.htm>)

**\*The information in this card is not meant to be complete but to be a quick guide; please consult other references and expert opinion**

## CHEMICAL TERRORISM GENERAL GUIDANCE\*

### Pocket Guide

### Diagnosis: Be alert to following

- Groups of individuals becoming ill around the same time
- Any sudden increase in illness in previously healthy individuals
- Any sudden increase in the following non-specific syndromes
  - ◊ Sudden unexplained weakness in previously healthy individuals
  - ◊ Hyper secretion syndromes (like drooling, tearing, and diarrhea)
  - ◊ Inhalation syndromes (eye, nose, throat, chest irritation; shortness of breath)
  - ◊ Burn-like skin syndromes (redness, blistering, itching, sloughing)

### Understanding exposure

- Exposure may occur from vapor or liquid droplets and contamination of food or less likely water
- Chemical effects are dependent on:
  - ◊ volatility and amount of a chemical
  - ◊ water solubility (more soluble leads to more mucosal and less lung toxicity)
  - ◊ fat solubility (increased skin absorption)

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## CHEMICAL TERRORISM AGENTS AND SYNDROMES (INCLUDING NATURAL TOXINS)

Agents	Onset of symptoms	Symptoms	Signs	Clinical Diagnostic tests	Decontamination	Exposure route and treatment	Differential diagnostic considerations for environmental /occupational exposures
<b>Nerve Agents</b>	Vapor: seconds Liquid: minutes to hours	<b>Moderate exposure:</b> Runny nose, Difficulty breathing, eye pain, dimming of vision <b>High exposure:</b> The above plus sudden loss of consciousness, flaccid paralysis, seizures	Pinpoint pupils (miosis) Hyper-salivation Diarrhea Seizures	Red blood cell or serum cholinesterase (whole blood)	Rapid disrobing, Warm-water wash with soap and shampoo	<b>Inhalation, dermal absorption</b> Atropine (2mg) iv or im 2-PAMCl 600mg injection or 1.0 g infusion over 20-30 minutes Additional doses of atropine and 2-PAMCl depending on severity, Diazepam or lorazepam Ventilation support	Pesticide poisoning from organophosphorous agents and carbamates cause virtually identical syndromes
<b>Cyanide</b>	Seconds to minutes	<b>Moderate exposure:</b> Dizziness, nausea, headache, eye irritation <b>High exposure:</b> Loss of consciousness	<b>High exposure:</b> convulsions, Cessation of respiration	Cyanide (blood) or thiocyanate (blood or urine) levels in lab	Clothing removal	<b>Inhalation, dermal absorption</b> Oxygen (face mask) Amyl nitrite Sodium nitrite (300mg IV) and sodium thiosulfate (12.5g IV)	Similar CNS illness results from: Carbon monoxide (gas or diesel engine exhaust fumes in closed spaces) H <sub>2</sub> S (sewer, waste, industrial sources)
<b>Blister Agents</b>	12-72 hrs  Range: 2 minutes – 8 days	Burning, itching, or red skin Mucosal irritation Shortness of breath Nausea and vomiting	Skin erythema Blistering Upper airways sloughing Pulmonary edema Diffuse metabolic failure	Often smell of garlic, horseradish, and mustard on body Oily droplets on skin from ambient sources	Large amounts of Water	<b>Inhalation, dermal absorption</b> Local treatment for burns Supportive care For Lewisite and Lewisite/Mustard mixtures: British Anti-Lewisite (BAL or Dimercaprol)	Diffuse skin exposure with irritants, such as caustics, sodium hydroxides, ammonia, etc., may cause similar syndromes.  NaOH from trucking accidents
<b>Pulmonary agents (including HCl, Cl<sub>2</sub>, NH<sub>3</sub>)</b>	1 – 24 (rarely up to 72) hours	Shortness of breath Chest tightness Wheezing Mucosal and dermal irritation and redness	Pulmonary edema with some mucosal irritation (more water solubility = more mucosal irritation)	No tests available but source assessment may help identify exposure characteristics (majority of trucking incidents generating exposures to humans have labels on vehicle)	None usually needed	<b>Inhalation</b> Supportive care Specific treatment depends on agents	Inhalation exposures are the single most common form of industrial agent exposure. Mucosal irritation, airways reactions, and lung effects are common, depending on the agent of exposure
<b>Ricin (castor bean toxin)</b>	18 – 24 hours	<b>Ingestion:</b> Nausea, diarrhea, vomiting, fever <b>Inhalation:</b> chest tightness, coughing, weakness, nausea, fever	Clusters of acute lung or GI injury and circulatory collapse	ELISA (from commercial laboratories) in serum, respiratory secretions, or direct tissue	Clothing removal Water Dilute chlorine	<b>Inhalation, Ingestion</b> Supportive care Ingestion: charcoal lavage	Tularemia, plague, and Q fever may cause similar syndromes, as may other CW agents such as Staphylococcal enterotoxin B, and phosgene
<b>T-2 myco-toxins</b>	2-4 hours	Dermal and mucosal irritation Nausea, vomiting, and diarrhea Ataxia Red skin, blistering, and necrosis	Mucosal erythema and hemorrhage Tearing, salivation Pulmonary edema Seizures and coma	ELISA from commercial laboratories Gas chromatography/Mass spectroscopy in specialized laboratories	Clothing removal Water	<b>Inhalation, dermal contact</b> Supportive care Ingestion: charcoal lavage	Pulmonary toxins (O <sub>3</sub> , NO <sub>x</sub> , phosgene, NH <sub>3</sub> ) may cause similar syndromes though with much less mucosal irritation. Mucosal bleeding is prominent